

Attorney Docket No.: 01CON279P

REMARKS

By the present amendment and response, independent claims 1, 8, and 15 have been amended to overcome the Examiner's objections and claims 3 and 16 have been canceled. Thus, claims 1-2, 5-8, 10-15, and 18-20 remain pending in the present application. Reconsideration and allowance of pending claims 1-2, 5-8, 10-15, and 18-20 in view of the following remarks are requested.

The Examiner has rejected claims 1-20 under 35 USC §102(b) as being anticipated by U.S. patent number 5,886,393 to Merrill et al. ("Merrill"). For the reasons discussed below, Applicant respectfully submits that the present invention, as defined by amended independent claims 1, 8, and 15, is patentably distinguishable over Merrill.

The present invention, as defined by amended independent claims 1 and 8, includes, among other things, a first end of a bonding wire being ball bonded to a source bond pad (claim 1) or a third semiconductor die bond pad (claim 8) and a second end of the bonding wire being stitch bonded directly to a stud of bonding wire material, where the stud of bonding wire material is situated on a destination bond pad (claim 1) or a second semiconductor die bond pad (claim 8). As disclosed in the present application, an end of a bonding wire is ball bonded to a destination bond pad situated on a top surface of a semiconductor die. As further disclosed in the present application, after the bonding wire has been bonded to the destination bond pad, the bonding wire is cut above the bonding point, leaving a stud of bonding wire material remaining on the destination bond pad. Page 8, lines 8-16 of the present application.

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As further disclosed in the present application, a first end of a bonding wire is ball bonded to a source bond pad situated on the top surface of the semiconductor die and a second end of the bonding wire is stitch bonded onto the stud of bonding wire material that has been previously formed on the destination bond pad. Page 8, lines 17-20 of the present application. By first forming a stud of bonding wire material on a destination bond pad, ball bonding a first end of the bonding wire to a source bond pad, and then stitch bonding the second end of the bonding wire to the stud of bonding wire material that has been formed on the destination bond pad, the present invention achieves greater bonding wire loop height and increased control over the loop height of the bonding wire.

As a result, the present invention allows the length of the bonding wire to be accurately determined. Since the inductance of an inductor is generally proportional to the length of the inductor, by utilizing the bonding wire to form an inductor, the present invention advantageously achieves accurate control over the inductance of the bonding wire by accurately controlling the loop height of the bonding wire. Thus, by utilizing a bonding wire to form an inductor, the present invention advantageously provides an inductance that can be accurately adjusted or fine-tuned by appropriately increasing or decreasing the loop height of the bonding wire that forms the inductor.

In contrast to the present invention as defined by amended independent claims 1 and 8, Merrill does not teach, disclose, or suggest a first end of a bonding wire being ball bonded to a source bond pad (claim 1) or a third semiconductor die bond pad (claim 8) and a second end of the bonding wire being stitch bonded directly to a stud of bonding

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wire material, where the stud of bonding wire material is situated on a destination bond pad (claim 1) or a second semiconductor die bond pad (claim 8). Merrill specifically discloses bonding wires 173 extending between bonding terminal pads 172, which are situated on surface 129 of IC chip 128. See, for example, column 6, lines 51-60 and Figure 5 of Merrill. In particular, Merrill discloses connecting one end of bonding wire 173b to ball bonding portion 174 of bonding terminal pad 172c by ball bond 175 and connecting one end of bonding wire 173c to stitch bonding portion 176 of bonding terminal pad 172c by stitch bond 177. See, for example, column 6, lines 61-66 and Figure 6 of Merrill.

The Examiner states that "Merrill teaches wherein a second end of the bonding wire 173a is stitch bonded to the stud bump 175 (see Fig. 6)." Applicant respectfully disagrees. As discussed above, Merrill discloses connecting one end of bonding wire 173b to bonding terminal pad 172c by ball bond 175. Thus, in Merrill, bonding wire 173b is connected to bonding terminal pad 172 by a conventional ball bond, i.e. ball bond 175. In contrast, independent claims 1 and 8 specify a second end of a bonding wire being stitch bonded directly to a stud of bonding wire material.

In the present invention, as discussed above, a stud of bonding wire material is first formed on a destination bond pad, a first end of a bonding wire is ball bonded to a source bond pad, and a second end of the bonding wire is then stitch bonded directly to the stud of bonding wire material, which has been previously formed on the destination bond pad. This is a completely different process than the process disclosed in Merrill.

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and, consequently, results in a completely different and unconventional connection at the destination bond pad. Merrill discloses attaching bonding wires to bonding terminal pads by utilizing conventional ball bonds and stitch bonds. However, Merrill fails to teach, disclose, or remotely suggest a stud of bonding wire material situated on a bond pad and a bonding wire stitch bonded to the stud of bonding wire material, which has been previously formed on the bond pad. Furthermore, Merrill fails to even mention a stud of bonding wire material or provide any motivation for utilizing a stud of bonding wire material.

For the foregoing reasons, Applicant respectfully submits that the present invention, as defined by amended independent claims 1 and 8, is not suggested, disclosed, or taught by Merrill. Thus, amended independent claims 1 and 8 are patentably distinguishable over Merrill and, as such, claims 2 and 5-7 depending from amended independent claim 1 and claims 10-14 depending from amended independent claim 8 are, *a fortiori*, also patentably distinguishable over Merrill for at least the reasons presented above and also for additional limitations contained in each dependent claim.

The present invention, as defined by amended independent claim 15, teaches, among other things, forming a stud of bonding wire material on a destination bond pad, ball bonding a first end of a bonding wire to a source bond pad, and stitch bonding a second end of the bonding wire directly to the stud of bonding wire material, wherein the step of forming the stud of bonding wire material on the destination bond pad is performed prior to the step of ball bonding the first end of the bonding wire to the source

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bond pad. Amended independent claim 15 specifies a method for forming the structure specified in amended independent claim 1. Thus, for similar reasons as discussed above, the invention, as defined by amended independent claim 15, is not suggested, disclosed, or taught by Merrill. Thus, the present invention, as defined by amended independent claim 15, is also patentably distinguishable over Merrill and, as such, claims 18-20 depending from amended independent claim 15 are, *a fortiori*, also patentably distinguishable over Merrill for at least the reasons presented above and also for additional limitations contained in each dependent claim.

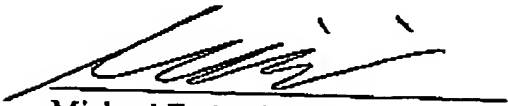
Based on the foregoing reasons, the present invention, as defined by amended independent claims 1, 8, and 15, and claims depending therefrom, is patentably distinguishable over the art cited by the Examiner. Thus, claims 1-2, 5-8, 10-15, and 18-20 pending in the present application are patentably distinguishable over the art cited by the Examiner. As such, and for all the foregoing reasons, an early allowance of claims 1-2, 5-8, 10-15, and 18-20 pending in the present application is respectfully requested.

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Respectfully Submitted,
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